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AUTHOR Daily, Frances M.; Phillips, James A., Jr.
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ABSTRACT

In this research report, classrooms are seen as affective learning environments in which human relationships expand or restrict the quality of learning. The two-part report discusses (a) fundamental differences in social structures among classrooms, as measured by the Centrality-Diffuseness Index (C-D Index); and (b) relationships between the verbal behaviors of 18 female teachers (as measured by Flanders Interaction Analysis) and the affect-rejection patterns of their 576 fifth-grade students. Significant correlations from .50 to .86 between Flanders categories and classroom social structures are discussed. The report concludes that the teacher's behavior "Acceptance of Children's Feelings" relates significantly to expanded ranges of children's social interaction and that the C-D Index should be used in more definitive research of classrooms as social systems. Nine figures explaining the results of the study are included. (Author/BRB)

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Frances M. Daily
#14 Parliament House
737 Wilmington Avenue
Dayton, Ohio 45420

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Phenomena and Methodology of Studying Social Structures
in the Classroom

Frances M. Daily*
University of Dayton

James A. Phillips, Jr. **
Kent State University

*Dr. Daily is Clinical Professor at the University of Dayton in the program receiving the Distinguished Achievement Award for Excellence in Teacher Education awarded by the American Association of Colleges for Teacher Education.

**Dr. Phillips is Professor of Secondary Education and the Coordinator of Graduate Studies in Curriculum, Instruction and Supervision at Kent State University.

Phenomena and Methodology of Studying Social Structures in the Classroom

Abstract

Classrooms are seen as affective learning environments in which human relationships expand or restrict the quality of learning. This two-part research report discusses, ^(A) first, fundamental differences in social structures ⁱⁿ at the classroom level with the construction ^{through} of the Centrality-Diffuseness Index, ^(C-D Index) as a measure ^{ing} of structural differences between classrooms; ^(b) Second, the relationships ~~are reported~~ between the verbal behaviors, ^{as measured by Flanders Interaction Analyses} (Flanders) of 18 female teachers and the affect-rejection patterns of their 576 Fifth-Grade pupils. Significant correlations ^{from .50 to .86} between Flanders categories and classroom social structures ~~ranging between .50 and .86~~ are discussed. Acceptance of Children's Feelings ^{is} ~~was~~ the teaching behavior ~~found repeatedly to relate~~ ^{ing} significantly to expanded ranges of children's social interaction. The C-D Index should ~~open~~ ^{initiate} the way to more definitive research of classrooms as social systems. ^(Nine figures explaining the results of the study are included.) Author/BRB

Phenomena and Methodology of Studying Social Structures in the Classroom

Teachers need to become aware of their role in creating, maintaining, or changing the affective environment of learning. In achieving social goals teachers face new areas of assessment beyond subject-matter evaluations. Sociometric knowledge can contribute significantly to an understanding of peer-group social networks as functions of teaching behavior.

This report discusses sociometric information as a total classroom phenomenon giving feedback about the effective life of the intricately-related learning group. Characteristic patterns of social interaction and ways in which teachers' verbal behaviors relate to such patterns are drawn from the research of Daily (2) in working intensively with 576 children in selfcontained classrooms and their 18 teachers. Children's choices are examined here as one peer links to another through affect or rejection. An index of centrality and diffuseness of structure was developed as a part of this research to differentiate kinds of sociometric patterns with objectivity. This CENTRALITY-DIFFUSENESS INDEX is discussed as an index of interpersonal life in the micro-society of teacher and pupils.

The method used to measure classroom interaction patterns is sociometric analysis; Flanders interaction analysis (1) is used to assess teacher behavior. Everyday language often reflects an implicit belief that classrooms are miniature societies. Moreover, these mini-societies are likely to exhibit meaningful differences from one another. This is

indicated when visitors emerge from classrooms with remarks like "a warm room," "so apathetic," "cold," etc. The research reported in this paper is based on the assumption that these perceptions reflect differences in classroom interaction patterns that are being manipulated by the teacher whether she knows it or not. It is hypothesized that classroom interaction patterns are associated with the acquisition of important social and psychological skills. A tragic extension of this hypothesis is that in certain classroom situations maladaptive social skills are also acquired.

Types of Social Structure

1. Centrality: Major concepts to be developed surround ideas about centrality and diffuseness of choice as these patterns appear when mapped by the sociogram. Richard Schmuck (7) had developed definitions of these concepts and delineated these two structural types. Centrality is described as narrowly focused interpersonal choice. This is to say that a large number of pupils agree on a small number of classmates in a given sociometric area. With this narrow focus on few children, many children are neglected entirely. Typical of highly centralized patterns are Figures 1 and 2. (The C-D Index of each of these two sociograms is 1.)

Consider the nature of room affect, then, where children respond to any sociometric question in such ways as to create centralized patterns. If the choice is positive, (answering such questions as: who is best friend, who is fun to be with,

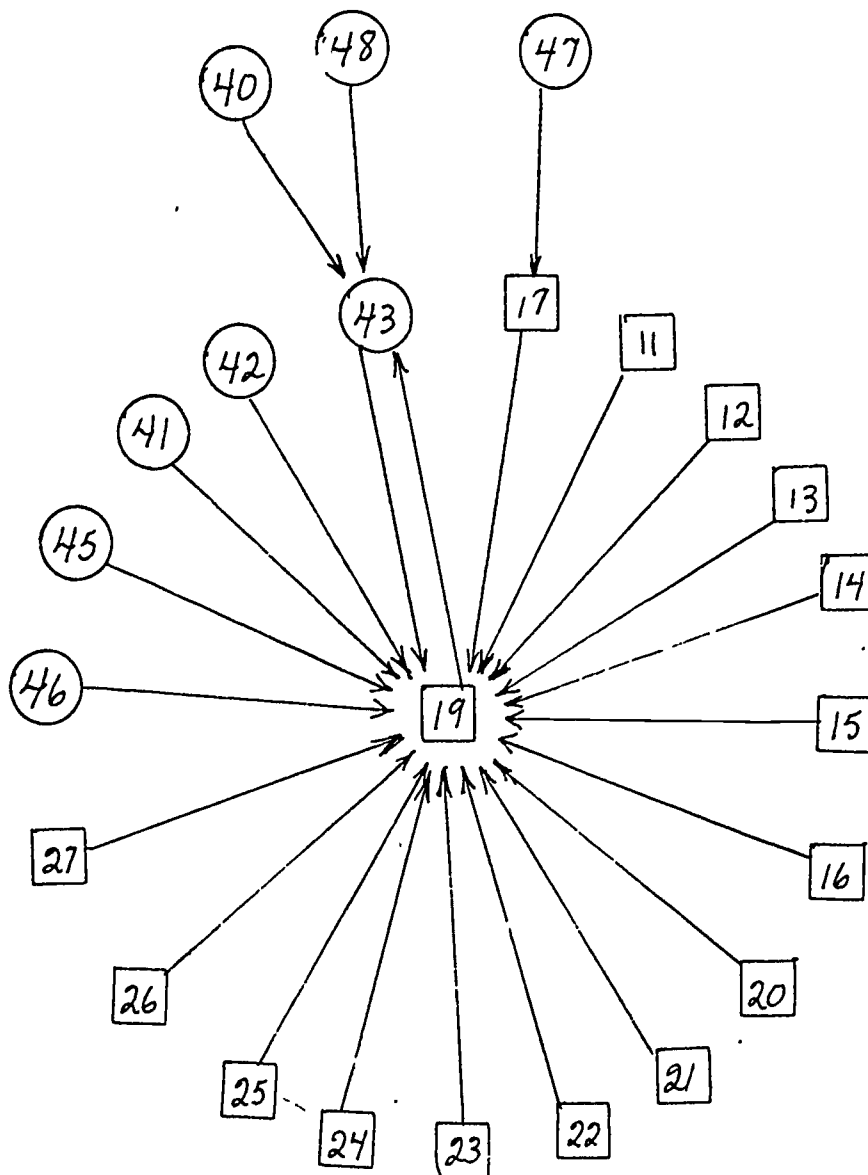


Figure 1. Socioquestion 4, Class 5, C-D Index: 1

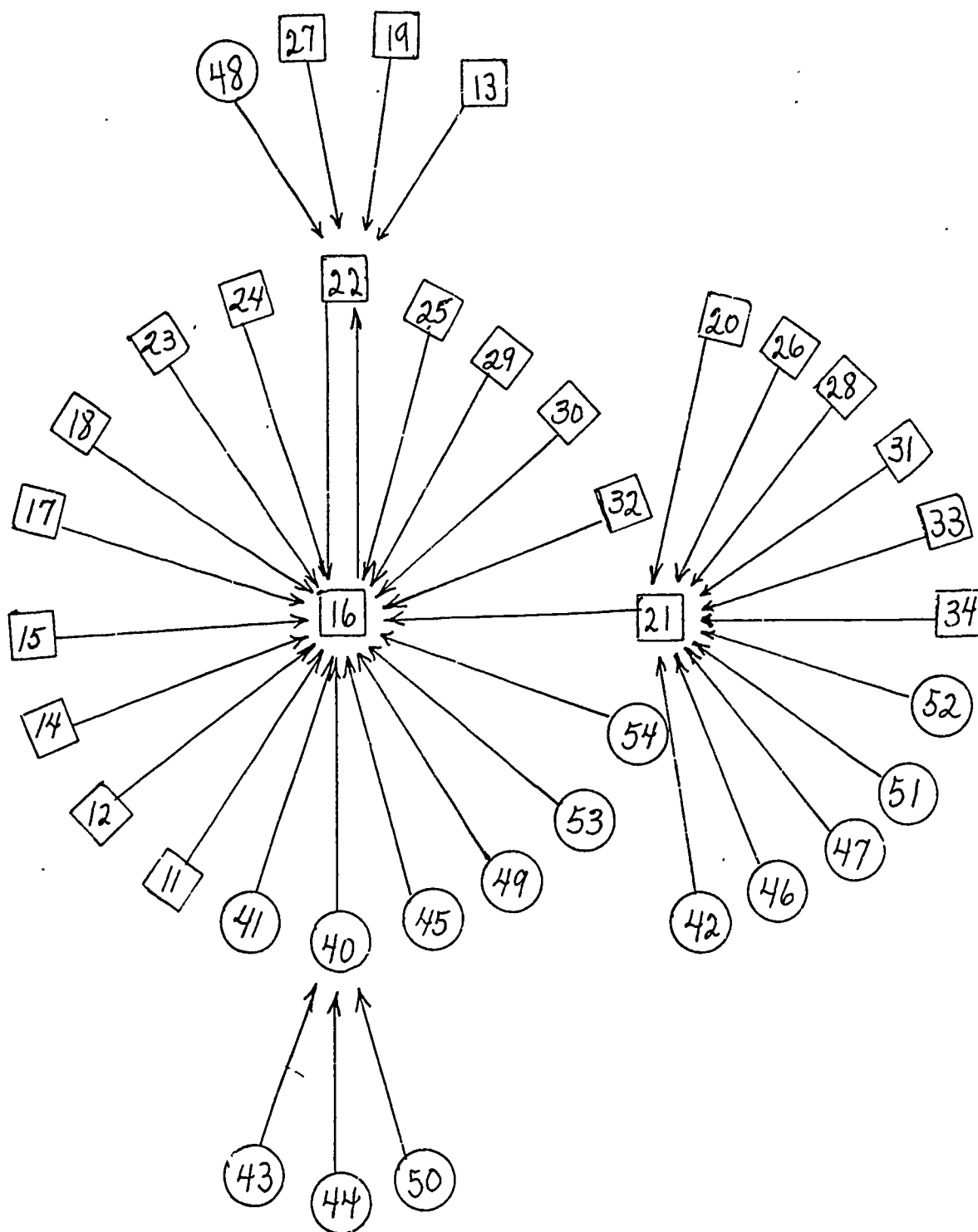


Figure 2. Socioquestion 4, Class 17, C-D Index 1

who is good at their subjects,) the nature of children's choices is limited. For instance, where an entire class can name only one or two children as best friend, the implications are that many are not thought of as worthy of status choice. The high degree of concensus further comments on the closed character of the social system in which only a certain few may qualify.

On the other hand, the devastating effects of centralized response patterns to socioquestions of rejection are even more serious to consider. For children, peer's rejection can be a more brutal reality with which to deal than the more neutral environment of not receiving high status choices. One must ask what happens within the classroom to create and maintain highly centralized structures in response to negative status (rejection) questions. One child in this research received 161 such rejections. Also the negative selections were overwhelmingly focused on male children by both sexes. We need to examine teaching behavior which may suggest, designate, or sanction such loadings of choice. Certainly this is necessary if we are to have any hope of rehabilitating troubled children into more effective societal roles.

2. Diffuseness: Diffuse structures may be considered at the opposite pole from centralized structure. The work of Helen Jennings (5) had pointed up some of the psychological phenomena involved in the choosing processes of mentally healthy children. She defined what she calls the staircase phenomena of sociometric structure in which the social relationship of the

chosen to the chooser is described as follows:

The chosen will not be at a great psychological distance from the chooser; he will be sufficiently more advanced in respect to matters of importance to the chooser that he can help without being impatient or unconcerned; the chosen will be close enough to the chooser in development so that his attitude is marked, not by condescensions or boredom, but by constant, dependable, and keen interest. (5, p. 88)

Jennings has commented further that the staircase nature of first choices represent the greatest psychological investment by the chooser who "reaches deep into the core of his personality in making his decision". The effect is that first choices have greater stability and longer duration, while other choices are less essential and connote less emotional involvement.

The staircase or chaining concept of choice then implies that in situations where children have opportunity for some functional interaction, their first choices will tend to reach upward in conferring affect and status, with small incremental steps between each chooser and his chosen. Thus it is theoretically possible that an entire class might be linked by the individual choosings into vertical linkings of this kind:
O->O->O->O->O->O as each child chooses "psychologically somewhat above himself". This was in fact what was found to occur in many classrooms whether in response to best friend or other socioquestions. Figures 3 and 4 reveal the dramatic differences in the patterns of interpersonal affect from those which are centralized in their structure.

In describing the characteristics of diffuse structure, Schmuck defined peer choosing patterns as widely focused

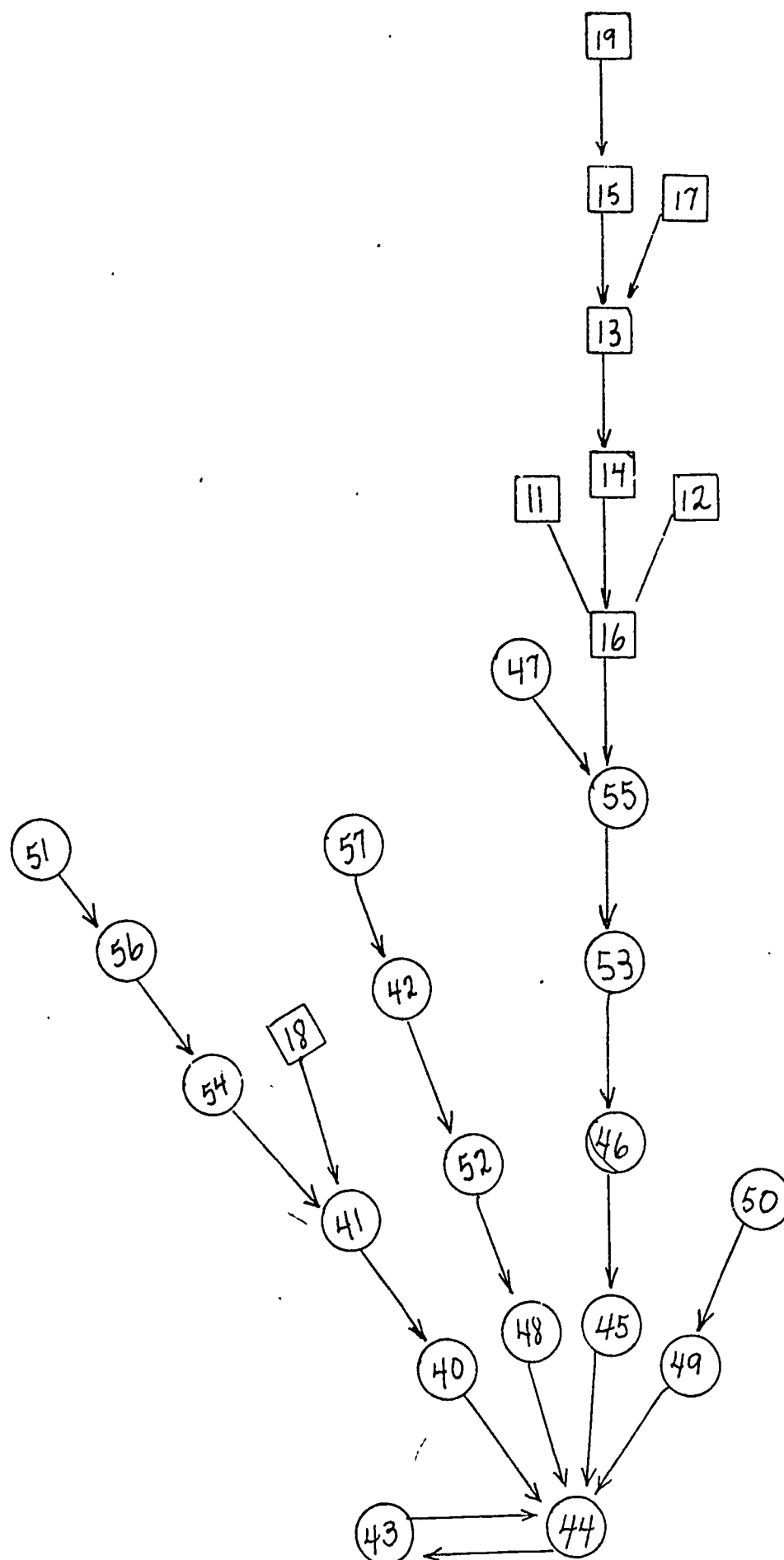


Figure 3. Socioquestion 6, Class 6, C-D Index 27

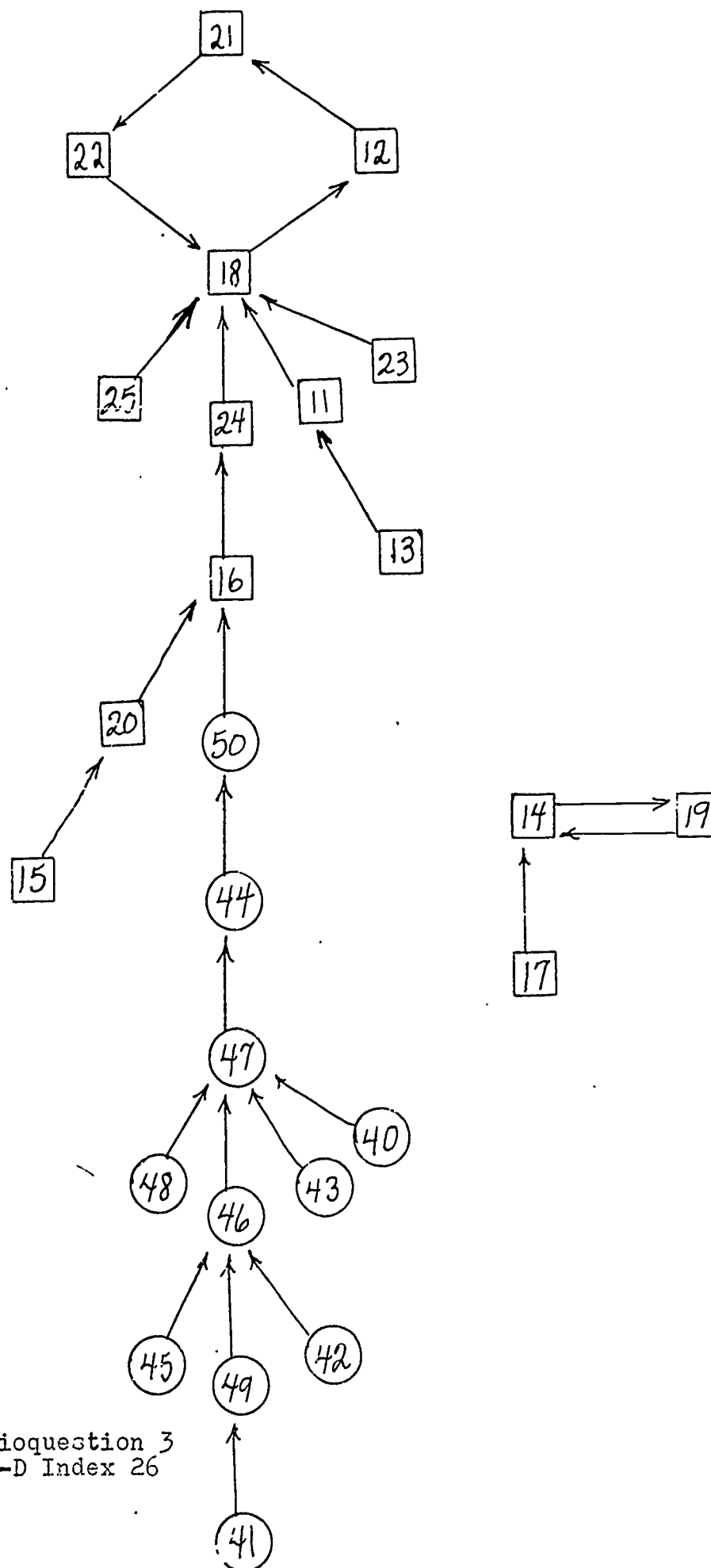


Figure 4. Socioquestion 3
Class 12, C-D Index 26

interpersonal choice with more equal distributions of choice. He pointed out that there are no distinct subgroups whose members receive a large proportion of preferences, and fewer entirely neglected pupils. In Figures 3 and 4, the examples show both the staircase phenomena of Jennings and the diffuse structure defined by Schmuck. The index of social structure developed by Daily utilized both the chaining concept and the equal distribution of choice.

The affect flow in diffusely structured classrooms such as those illustrated show gradations of choice which indicate increased sensitivity to the many smaller degrees of perceived difference between the choosers and the chosens. In regard to rejections, disaffect is more personally a matter of avoidance which most children experience mildly; and in regard to acceptance, a large number of children are seen to be admirable and worthy of respect, desirable for affective relationships.

3. The Centrality-Diffuseness Index: Utilizing concepts of structure already existing in the literature, mainly in the work of Schmuck and Jennings, Daily developed the C-D Index as a product of the social linkage ratio and the percent chosen. In her major study over 250 sociograms on 15 different social criteria were developed with the C-D Indices discriminating well between centralized and diffuse structures on a continuum.

Range of C-D Indices		
Centralized		Diffuse
1<-----		----->27
Single pattern structures	Multi-patterned with overchosen	Single pattern structures
Star patterns of over-chosen	Subgroups Cliques	Chaining Equal distribution of choice

By omitting the decimal points from these ratios and using but the two-place decimal, a range of 1 to 27 was found in the data collected. (Thus a ratio product of .0121 would be interpreted as a C-D index ratio product of .2715 would be shown as a C-D index of 27.) For inspection of these extremes of pattern, compare Figures 1 and 2 exhibiting the most highly centralized social structures in the study with Figures 3 and 4 exhibiting the most diffuse social structures obtained.

The numeric range so devised renders mathematically manipulative the gradations of structural difference between sociograms. The conversion of the sociogram into a statistically descriptive unit via the C-D Index made possible the correlational research discussed in this paper. This research examined the relationships between verbal behaviors of the teachers in the classrooms and the social structures among their pupils.

The Sociometric Question

The impact of the peer group's reflection of self image-- society as the mirror of human perfection and imperfection-- is an integral part of each learner's concept of self. The learning environment then encompasses how children choose one another under various societal conditions and for various purposes. Which conditions should be probed for teacher feedback? How should the questions be framed?

The quality of sociometric information is directly related to the appropriateness of the socioquestions.

Certainly the socioquestions should be framed to obtain pertinent information for the teacher. She needs to define first what she wants to know, how she plans to utilize the findings as feedback information. Every class presents the teacher with unique sociometric patterns and needs. However certain questions may be suggested as generally useful in examining the human dynamics of the learning environment.

1. Affect and Status Questions: A first sociometric choice having the highest order of psychological investment for the child is the best friend socioquestion. If the best friend is outside the classroom, this has meaning for classroom dynamics as well as if the best friend were in the room. Patterns of repeated choice in a sequence of questions is also most important. It is significant to know whether a child has ego strength to make choices of many different children according to the function they will perform together or whether the child has so little affect to risk that he repeats his best friend choice for all other criteria. Jennings (5, p. 56) has commented on this kind of repeated choice or "overlap" in response to different work-oriented socioquestions:

The less extensive the overlap, the more suitable the program may be inferred to be in enabling the children to grow up emotionally and socially and to participate with others in many kinds of group situations.

Children with less social maturity, and those with highly confining classroom life are characterized by such repetitive choices. Since the classroom is in fact a laboratory where children acquire human relations skills, the question must be considered as to whether children are learning functional or

maladaptive interaction skills. Thus, who is your best friend has significance for interpretation of later socioquestions as well as for its own intrinsic information.

In the research cited, eighteen teachers' verbal behaviors were sampled with Flanders Interaction Analysis (1). These behaviors as Flanders percentages were correlated with C-D Indices of choice and rejection socioquestions from the 576 children in those eighteen classrooms. The teacher verbal behavior which related significantly to the diffuse structures of pupil choice in regard to best friend was teacher use of children's ideas in the classroom ($r=.51$). In interpreting this correlation, more centralized structures were related to those classrooms whose teachers were lowest in their use of children's ideas. In these most highly centralized classes, peers selected only one or two children from the entire class to award all their choices to. Few children were seen as worthy of best friend role. The chains of choice were almost non-existent.

Among the first order correlations with the best friend socioquestion, the teaching behaviors which were related to diffuse structures of children's choice were the following Flanders categories:

Flanders 3:	Uses children's ideas	$r = .509$
Flanders 2:	Praises and encourages	$r = .504$
Flanders 1:	Accepts children's feelings	$r = .235$

These statistics indicate that where more children have their ideas valued by the teacher, more children become "visible" to one another in acceptable ways. From such visibility, more gradual gradations of choice are possible since children have

more evidence about one another. Increasing their security to make personal choices is the example of acceptance and support displayed by their authority figure as well. In this way, employment of social awareness and empathy as social skills within a class can be seen in the longer chains of affect flow.

Another question in regard to highly centralized classrooms may be discussed here. Where one or two children are high consensus choice of a class, to whom has the teacher directed the small amounts of praise? In the few incidences where children's ideas may have been used, whose ideas were used? It is highly probable that these low-incidence teacher behaviors are acutely perceived by pupils, and the children so honored by this unusual attention are noted by the class. In this way, low-incidence supportive behavior can serve a signalling and sanctioning function about certain children, and at the same time carry covert messages about unworthiness to many others.

The teacher designing a sociogram with which to study the social structure of her class needs to consider that boys and girls award status on different bases. Extensive researches by Tuddenham (8), Gold (4,6), and Lippitt (6), and others have revealed the different bases upon which each sex awards status to their peers. Boys value competence, influence ability, daring, leadership, while girls value more sedate, ladylike, and affect-based relationships. Hence to map both the male and female affect flow, different bases for socio-questions must be presented. Some questions should probe

leadership and competence while others should be designed to explore more affective criteria.

The socioquestion which generally yielded the highest C-D indices across all classrooms was the affect-based Who in the room is friendly, fun to be with, and doesn't tease?. The range of C-D indices were between 26 and 7, with an average C-D index of 15 (Figures 4 and 5). Generally children within the research sample tended to choose their peers in a staircase or chaining pattern of diffuse structure on the criteria of fun and friendliness. In other words children exhibited greater freedom for distinctly personal decisions in regard to the criteria of this socioquestion. Hence it is interesting to compare the lines of acceptance between children in the class receiving the lowest C-D index. Figure 5 represents the class that had the largest enrollment of all those sampled --43 children in one selfcontained classroom. The sociogram revealed six nearly equal-in-size social networks rather than integration into a single system. This raises some interesting questions: When children are taught in larger groups, do they tend to form fewer socioemotional associations? If so, what size group is optimal for functional interaction? Are patterns different for different ages? Would multiage classrooms be different from the selfcontained classrooms of the research discussed here?

The teaching behavior which correlated with diffuse structure on the fun and friendliness socioquestion was Flanders Category Four of questioning ($r = .53$) as the most significant predictor of diffuse structure. Questioning by

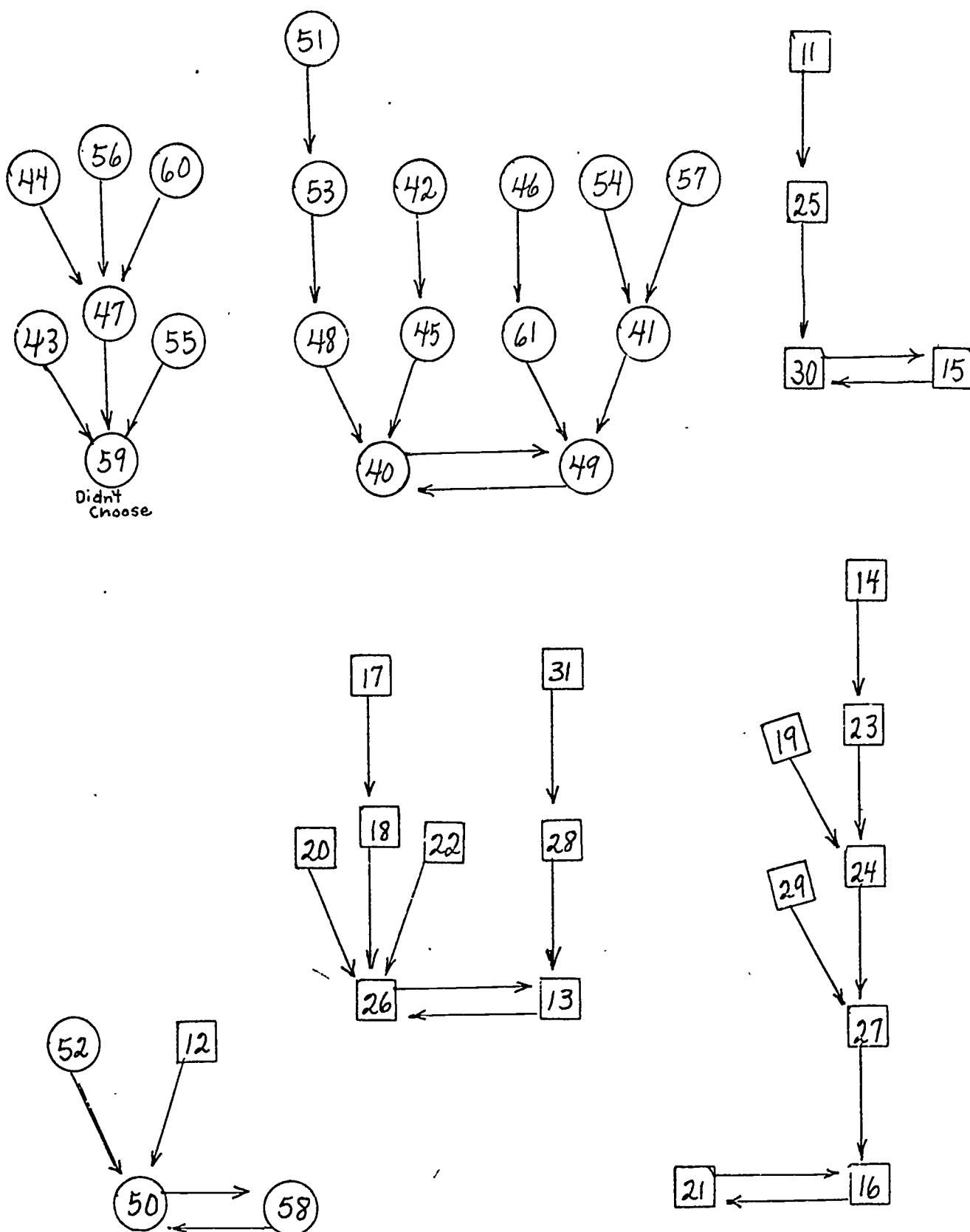


Figure 5. Socioquestion 3, Class 8, C-D Index 7

the teacher appears to identify more children who are friendly and fun; and the converse, where teacher ask but few questions, children are high in their consensus that two or three children have these qualities. Perhaps these same children are the ones to whom the teacher directs the questions. Certainly this would merit further investigation.

A second type of affective question used in the research explored the composite realm of socio-emotional and functional types of choice:

6. Almost everyone has trouble with school work once in awhile. Sometimes you can help them out. Who in the room would you like to help?

The implication of Socioquestion Six is that children not only care for the child chosen, (exploring the possibility of chaining phenomena among their choices), but further implying that the chooser is academically capable of giving assistance to his chosen. This aspect too would be expected to chain out in a hierarchy of small descending steps of academic power as school competence is perceived between peers. The assumptions were that where children have freedom to know their peers, study and work cooperatively, use one another as resources in ideational development, the chaining phenomenon would be found. On the other hand, where the environment is restricted to minimal or aversive peer interaction, the centralized patterns of star formations would be anticipated.

In the research, Socioquestion Six did in fact receive the second highest average C-D indices with the average degree of diffuse structure being 13. While 13 is mid-range in the data, the range was extreme; from a centrally structured

classroom with the low C-D index of 5 to a highly diffuse classroom with a C-D index of 27 (Figures 6 and 3). In determining which verbal behaviors of the teachers were related to each of these extreme patterns of peer choice, statistical analysis isolated three verbal teaching behaviors ($r = .71$). Children were willing to help more of their peers in longer chains of affect and competence in those classrooms where teachers accepted children's feelings, used their ideas, and who did least amounts of lecturing. Conversely, children singled out two or three of their peers to help in classrooms where teachers did not accept children's feelings, and did not make much use of their ideas, but who were high in lecturing behavior. It is almost impossible to escape the suggestion that in centralized classrooms, the concept of helping behaviors did not extend to cooperative kinds of assistance but rather represented remediation to those deficient few. One can not help but consider the concept of self which those few may have as mirrored by their classmates. It is encouraging to note however the tendency for this socioquestion to pattern in more diffuse types of structure.

A competency-based socioquestion having on the average the most highly centralized structure across all the classes studied was Who in the room is smart and good at their subjects having a range of C-D indices between 1 and 9 (Figures 1, 2, and 7). In every classroom consensus on this question was well established. It is interesting to examine the complex of teaching behaviors which correlated with the less central

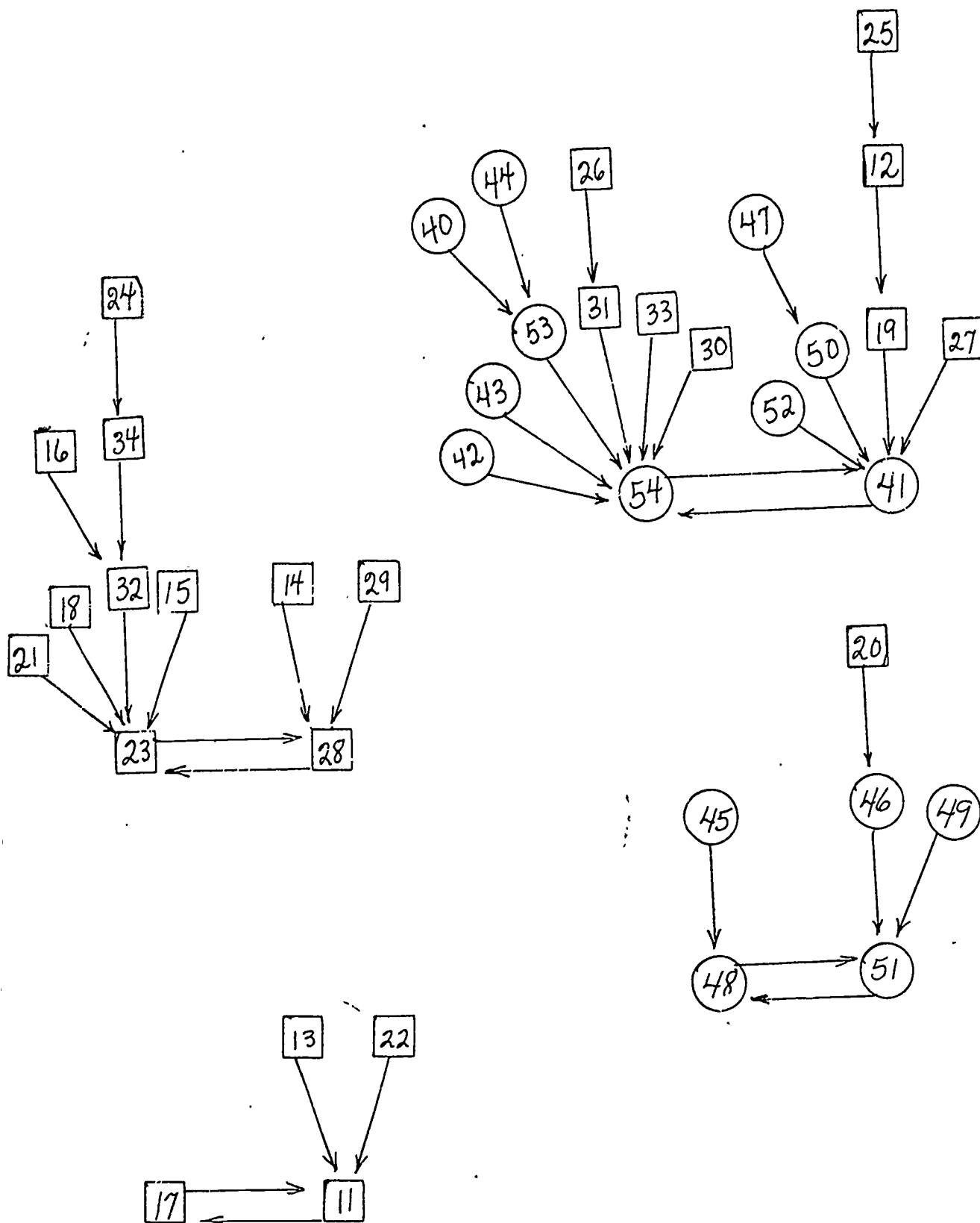


Figure 6. Socioquestion 6, Class 17, C-D Index 5

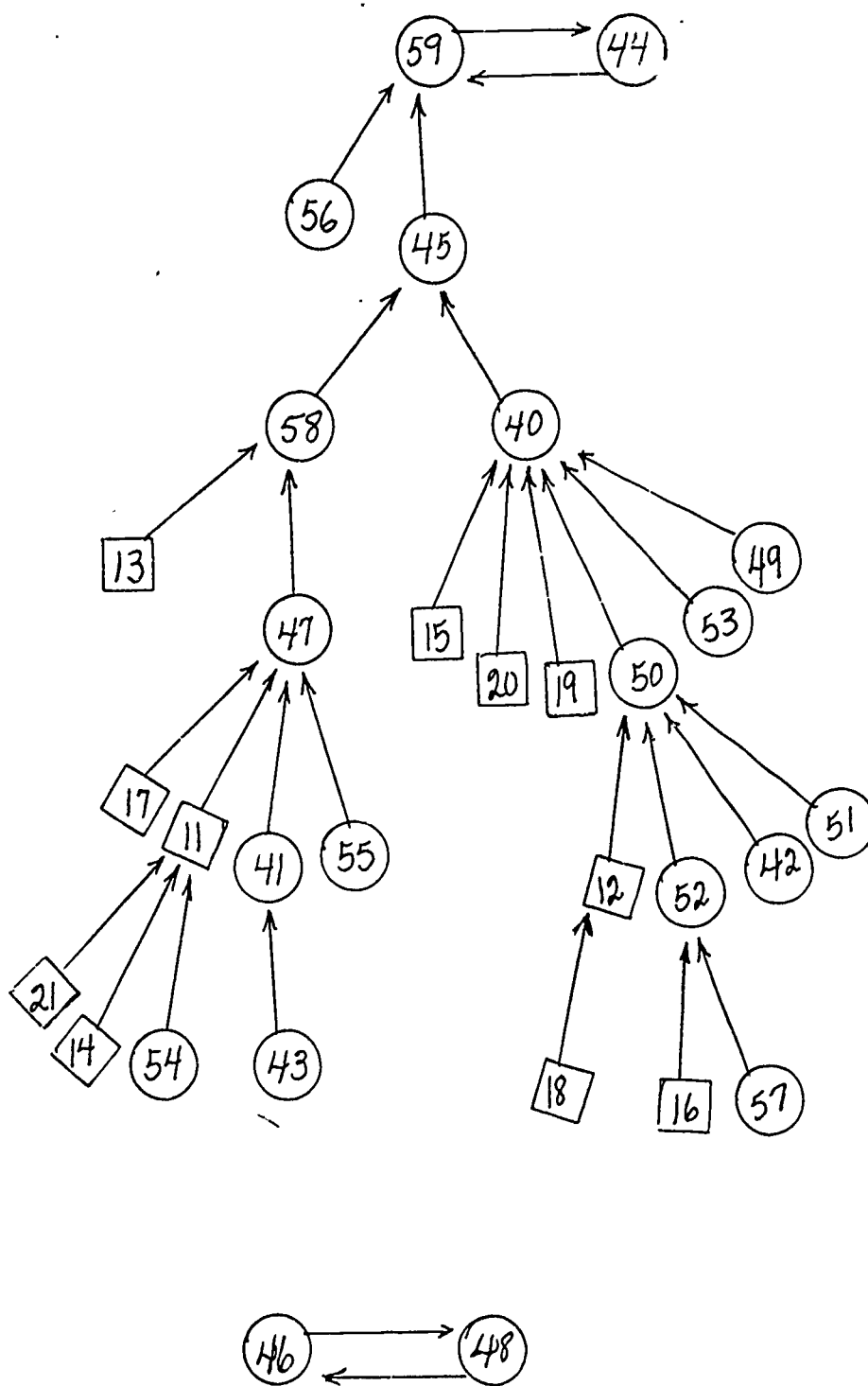


Figure 7. Socioquestion 4, Class 2, C-D Index 9

structures on the criteria of smartness and academic competency. Four teaching behaviors taken together were the significant factors ($r = .86$). Teachers who criticized but who also accepted children's feelings and who did the least amounts of lecturing and using children's ideas were found related to sociostructures having somewhat more children being perceived as smart and good at their subjects. Highest loadings of choice on single children were in rooms of teachers who did not criticize, and who did not accept children's feelings, but who were high in lecturing and in the use of children's ideas. These findings demand concern for the mental health of children, their sense of adequacy, and their feelings of worth where high consensus indicates that only one or two children in every class are considered by their peers as successful in what school is all about. Clearly more evidence is needed to know what changes in teaching behavior can be made in order to allow more children to emerge with a success mystique.

Although the socioquestion of smart and good at subjects was found to be highly centralized in structure, the reciprocal socioquestion Who is good at other things you do at school was not. This latter question was deliberately vague in order to tap undesigned dimensions of children's valuing. It was hypothesized that children might choose in patterns of fragmented structure showing many "interest-admiration" groups or in the chaining patterns where children were well acquainted and also possessed the ego strength for wider affect flow.

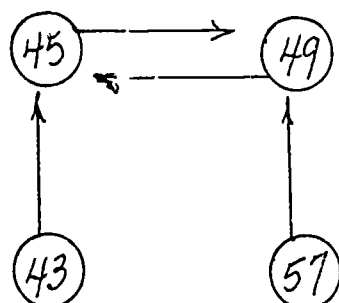
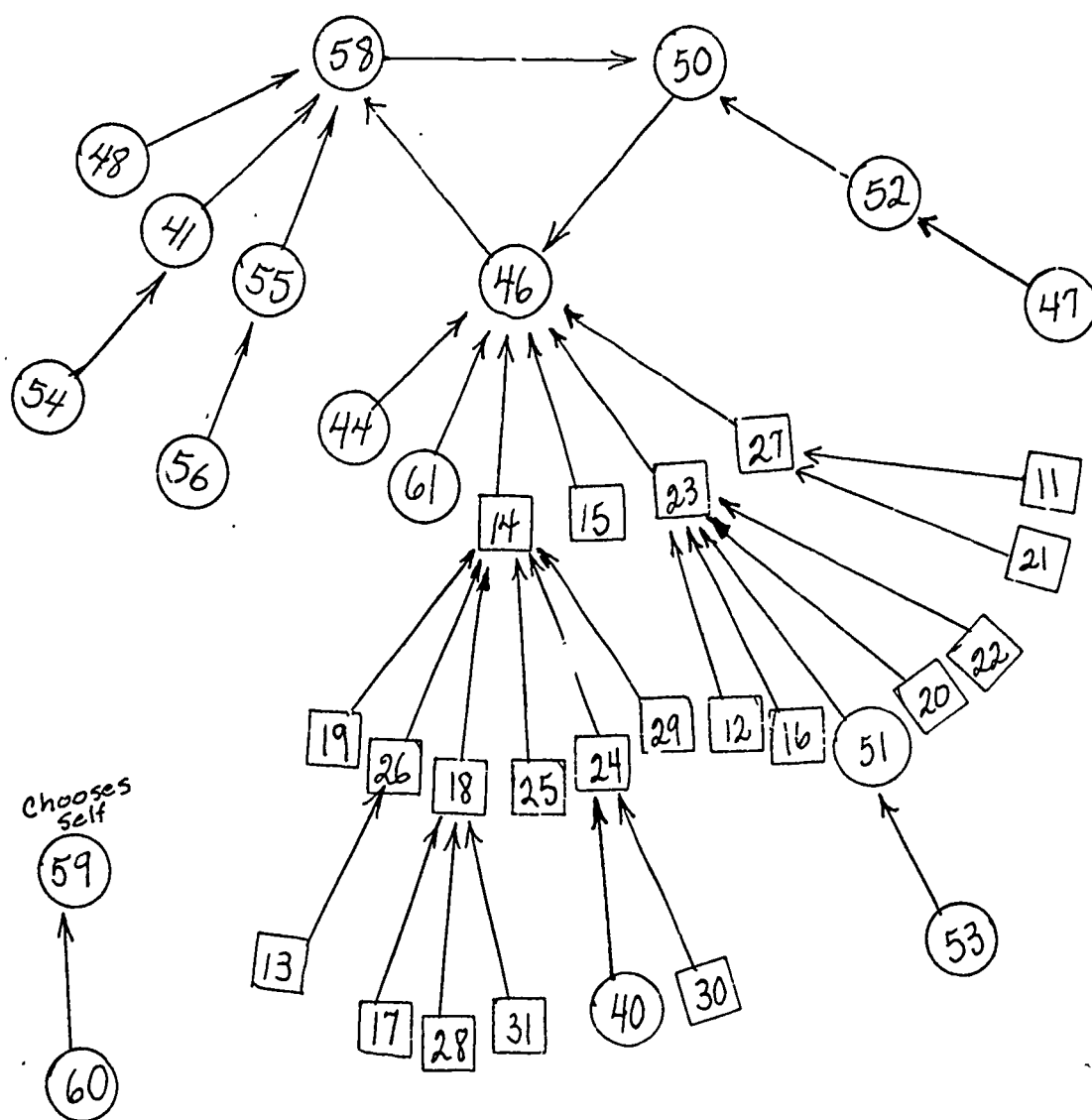


Figure 8. Socioquestion 5, Class 8, C-D Index 5

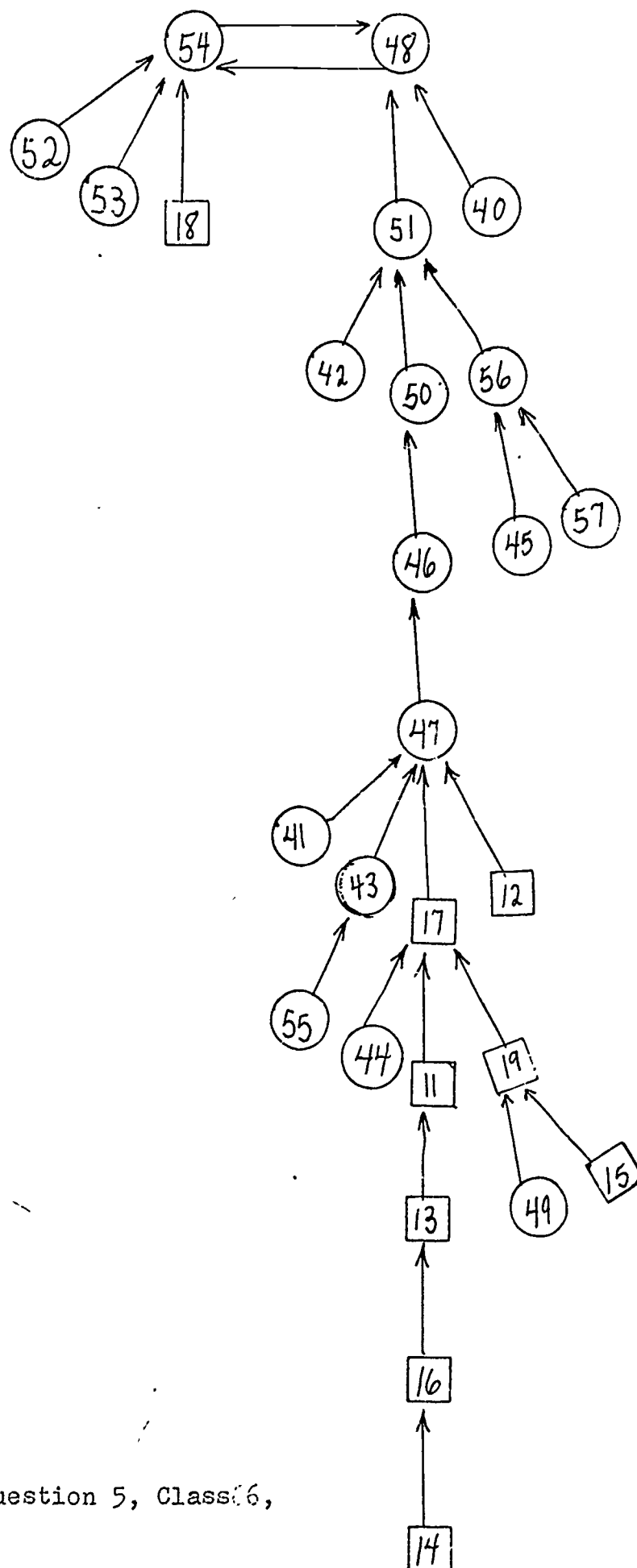


Figure 9. Socioquestion 5, Class 6,
C-D Index 19

Choice patterns for this socioquestion ranged between a C-D index of 5 for the most centralized class and 19 for the most diffuse sociostructure (Figures 8 and 9). The teaching behavior which related to diffuse structures on the criterion was the Flanders Category Two, praising and encouraging ($r=.65$). Since the socioquestion was so open, the implication seems to be that teachers high in praising behavior are also more generous in giving praise to more children. It would seem that general praise by its Ripple effect increases affect flow and ego strength for a majority of children. Earlier work by Flanders and Havumaki (3) would tend to reinforce these interpretations. In their research they sought to answer whether "teacher-pupil contacts involving praise" would affect the sociometric choice of pupils with this conclusion:

Teacher-pupil interaction involving praise that is supportive and constructive is likely to increase the choice value of a student indicating greater acceptance by his peers.

One is led to wonder how these patterns for both socioquestions might be different in classes which are highly individualized for instruction. Clearly more research data is needed in a variety of educational settings.

2. Rejection and Disaffective Socioquestions: Rejections among children also contribute to the essence of classroom life. Where rejections are small personal encounters in high affect classrooms, children get experience in dealing with personal differences in a variety of ways and clearly without loading censure on singled-out individuals. However, among peers who have highly centralized patterns of rejection,

children suffer whether they are in the rejector or rejected role. Stereotyping and scapegoating are but two of the maladaptive behaviors to be learned in centralized classrooms.

Parallel socioquestions to the extremely centralized smart and good at subjects and the less extreme good at other things are the negative socioquestions of Who has the most trouble with school work and Who has the most trouble with other things at school. Again the same differentiation between academic and non-academic sociostructures were found. Most trouble with school work had a C-D range of from 1 to 13 with its average C-D index of 5. Most trouble with other things had a C-D range of from 4 to 18 with its average index of 9. Clearly those children sampled had much higher consensus, (whether accurate or not), about which peers were having academic difficulty. As for the teaching behaviors related to these socioquestions, only one significant factor was found. This teaching behavior in both instances was the acceptance of children's feelings ($r = .59$, $r = .51$). The greater the acceptance of feelings by the teacher, the greater the diffusion of feeling about academic and other difficulties among the children.

Of considerable importance to a number of sociostructures in the investigation was the factor of acceptance of children's feelings (Flanders Category One) in its relation to the diffusion of affect. The implications are strong that in this area children do role model the teachers who accept more of their peers in a more supportive climate for learning. Yet

this is the almost empty category of teaching behavior. Flanders and others have noted how seldom this behavior has been observed. In the over 33,000 tallies from the eighteen teachers in this study only 10 observations of this category were recorded. Those who work with children must become aware of the impact of genuinely accepting children's feelings as a means of creating more adequate structures for learning. The humanizing potential of this kind of acceptance indicates that the teacher must possess in her repertoire of interpersonal relationships the capacity to accept children's feelings and further, to communicate to the children that they do feel this way.

Another rejection socioquestion used in the research examined avoidance behaviors between children. Who in the room do you try to stay away from ranged from a centrally structured C-D index of 2 to a mid-range index of 15 with an average C-D index of 8. Thus the children in the sample tended to have considerable consensus on whom to avoid. Statistical analysis isolated four teaching behaviors taken together which were significantly related to more diffuse patterning of avoidance among pupils ($r = .77$). Teachers who were simultaneously high in using children's ideas, accepting children's feelings, giving directions, and criticizing or justifying authority had relatively more diffuse patterns of avoidance among their pupils. These four factors taken together seem somewhat unusual in that the first two are the most indirect of the Flanders categories, while the latter two are the most direct of the Flanders categories.

Interpretations of the findings are open. One possibility may be that where teachers show acceptance and support, that these behaviors are pervasive in children's response to other acts of the teacher. Perhaps under such situations, children also interpret the directive and criticizing behaviors as supportive positive concern for their welfare. Children's perceptions of the teacher may be more easily modified by certain teaching behaviors than by others.

On the centrally structured side of rejection, teaching which neglected children's feelings, avoided the use of their ideas, and which was neither directive nor critical, developed patterns which reveal what happens in the absence of feeling for children whether that feeling is supportive or authoritative. Rejections were highly given to one or two children. Perhaps these children were highly visible as a result of lack of authority of the teacher. Such structures may develop as counterleadership which scandalize the more circumspect peers in those rooms where the teacher interacts with minimal involvement, where the teacher has failed to accept her leadership responsibility. In the classrooms studied, interrelationships under indifferent teachers seemed to evoke maladaptive leadership behaviors among the pupils in those rooms.

Conclusion

Concern for information about classroom life has grown in the past decade as knowledge has increased about the relationship between the affective domain and optimal learning. The mental health of children, and hence the quality of their

learning, is affected by such aspects of peer status as isolation, rejection, regard, admiration, and avoidance. Traditionally, pupil sociograms have been used to understand and assist individual children, or to reveal leader-follower groups. However the sociogram has much to contribute about the miniature society inside the classroom wall. It has much to reveal about the affective communication of the teacher-- those subtle emanations picked up like radar by the children. The sociogram can be used to interpret the quality of inter-group life. With emphasis on the quality of peer group interdependence, teachers can more intelligently manage children in their social space. These maps of affect flow between children can reveal considerable information to the teacher about her own leadership, both actual and potential.

The kinds of differences that exist among children and classrooms are ordinarily referred to or discussed with such terms as "climate," "teacher's pet," "troublemaker". The position of this paper is that these commonsense categories are based on fundamental structural differences between classrooms, and that these differences can be revealed and examined by systematic research. Schmuck and Jennings developed excellent structural variables but methods of measurement at the individual level were not adequate for the purposes of revealing complexities of structure. The centrality-diffuseness concept reflects the relative position of the children in the social organization of the classroom and it is at the level of the classroom that an adequate

measure of the concept must be constructed. The author constructed a measure of structural complexity at the classroom level which can be used, not merely for measuring the relative placement of children, but for measuring important social-structural differences between classrooms themselves. An important extension of the C-D Index is that in quantifying the highly visual sociogram by its patterns of social structure, more definitive researches are possible. The research reviewed here outlines the kinds of information needed to relate the leadership role of teachers to their responsibility for the affective world of children's human relationships.

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